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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,377	07/30/2001	David D. Ratcliff	TI-33115	9994

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EXAMINER	
TRAN, CON P	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/918,377	RATCLIFF ET AL.	
	Examiner	Art Unit	
	Con P. Tran	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1, 6-7, 12-13, and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson").

Regarding **claim 1**, Cowieson teaches an audio processing machine comprising (see Fig. 1A, 2, 4, and respective portions of the specification):

a plurality of audio inputs (Lin 11, Rin 12; Fig. 1A; col. 2, lines 59-65);

a plurality of audio outputs (Slout 41, Srout 42; Fig. 1A; col. 2, lines 59-65);

a plurality of audio filters (Q-filter 34, Q-filter 43' Q-filter 44; Fig. 1A; col. 2, line 65 – col. 3, line 5);

a plurality of audio processing channels (Left and Right channels; col. 4, lines 54-57); and

a plurality of summers, which when subtracting the input signal from the output of Q-filter, L input 11 is also connected to Q-filter 43 as shown in FIG. 1. This is more clearly shown in FIG. 4. Also, R input 12 is connected to Q-filter 44. Both of these filters may be Q1 filters. The output each Q-filter is subtracted from the opposite input via summers 45 and 46. For example, the output of Q1 filter 44 is subtracted from L input 11 and used as the left rear or surround output 41. Right rear or surround output 42 is similarly formed from the output of Q-filter 43 subtracted from the R input. In this instance the outputs are L-Q[R] for L rear output 41 and R-Q[L] for R rear output 42, and thus the center information is canceled out. Thus summers (45) and (46) function as switches for not outputting any output to Slout and Rlout (45, 46, col. 4, lines 24-37), configured to selectively mix the plurality of audio inputs (Lin, Rin) and the plurality of audio outputs (outputs of Q-filter 43; Q-filter 44) such that audio signals passing through the plurality of audio inputs are processed via a plurality of audio filters (Q-filter 43; Q-filter 44) selected from the plurality of audio filters (Q-filter 43, Q-filter 44; Fig. 1A; col. 4, lines 23-37); and a plurality of audio processing channels selected from the plurality of audio processing channels (Left and Right channel; col. 4, lines 54-57) to generate at least one desired audio output signal (SRout 42; col. 4, lines 24-37).

Cowieson does not specify the switches 45 and 46 are multiply switches. However, in audio processing art, multiply switch is well known. Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate teaching of multiply switch with Cowieson in order to utilize software programming in audio processing.

Regarding **claims 7, 13, and 18**, these claims have similar limitations as claim 1. Therefore, they are rejected under Cowieson for the same reasons set forth in the rejection of claim 1.

Regarding **claims 6, and 12,** the Cowieson's filters are the Q-filters, which can be configured as the biquad filters.

3. Claims 2-3, 8-9, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson") in view of Matheny et al. US. Patent 6,148,314 (hereinafter, "Matheny").

Regarding **claims 2, 8, and 14,** Cowieson teaches audio processing device according to claims 1, 7, and 13, respectively. However, Cowieson reference does not explicitly disclose wherein the plurality of multiply switches are comprised of single-cycle multiply switches.

Matheny teaches the multiplier 18, Fig. 2A performs a single-cycle multiply (col. 5, lines 36-41). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate such teaching with Cowieson in order to allows the processing cycle count for the fed back additions to be reduced, as suggested by Matheny in column 2, lines 40-41.

Regarding **claims 3, 9, and 15,** Cowieson teaches audio processing device according to claims 1, 7, and 13, respectively. Matheny further teaches wherein the plurality of multiply switches are comprised of programmable multiply switches (col. 3, lines 49-57).

4. Claims 4, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson") in view of Matheny et al. US. Patent 6,148,314 (hereinafter, "Matheny"), and further in view of Tang et al. U.S. Patent 6,298,370 (hereinafter, "Tang").

Regarding **claims 4, 10, and 16,** Cowieson in view of Matheny teaches audio processing device according to claims 3, 9, and 15, respectively. However, Cowieson in view of Matheny does not explicitly disclose wherein the programmable multiply switches are reconfigurable on-the-fly.

Tang teaches a process of a computer system wherein the programmable multiply switches are reconfigurable on-the-fly (col. 116, lines 30-35). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate such teaching of Tang with Cowieson view of Matheny for purpose of allocation logic operations for performing resource management and dynamic load balancing for computer systems, as suggested by Tang in column 116, lines 37-39.

5. **Claims 1-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs U.S. Patent 5,155,743, in view of Rossmere et al. US. Patent 6,092,119, (hereinafter "Rossmere").

Regarding **claim 1**, Jacobs discloses a digital converter for use in audio application comprising:

a plurality of audio inputs (audio bit-streams 52, 53; Fig. 4);

a plurality of audio outputs (audio outputs 66,67; Fig. 4);

a plurality of audio filters (audio filters 11; Fig. 4);

a plurality of audio processing channels (processing channels 64,65; Fig. 4; col. 11, lines 36-65);

In Jacobs, the audio inputs are processed, filtered such that the audio processing channels (64-65) can be selected to generate at least one desired audio output signal. Jacobs, however, does not explicitly teach a plurality of switches configured to selectively mix the plurality of audio inputs and the plurality of audio outputs.

Rossmere discloses random access audio/video processor with compressed video resampling to allow higher bandwidth throughput. In Rossmere the switches (305, 310, etc.) of the board (152; Fig.3B) are to receive audio inputs and these inputs are to be mixed by the board (160; Fig. 3A), and the board (155; Fig. 3B, see col. 7, line 9 to col. 8, line 25).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to employ a mechanism where switches and mixer are used to mix the

audio inputs and outputs as taught by Rosemere into the system of Jacobs such that to provide a system with input audio streams to be mixed, filtered, and to be reconfigured with audio outputs such that to provide a quality audio output signals via audio processing channels for music production.

Regarding **claims 7, 13, and 18**, these claims have similar limitations as claim 1. Therefore, they are rejected under Jacobs-Rossmere for the same reasons set forth in the rejection of claim 1.

Regarding **claims 2, 8, and 14,** the Rossmere's switches can be configured as single-cycle multiply switches.

Regarding **claims 3, 9, and 15,** the Rossmere's switches are programmable switches.

Regarding **claims 4, 10, and 16,** the Jacobs's audio inputs are the audio bit-streams, which can be configured on the fly.

Regarding **claims 6, and 12,** the Jacobs's filters are the low pass-filters, which can be configured as the biquad filters.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran, whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at telephone number (703) 306-0377.

cpt CPJ
March 22, 2004

XU MEI
PRIMARY EXAMINER